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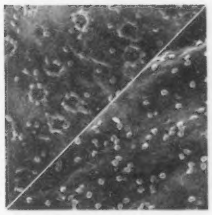

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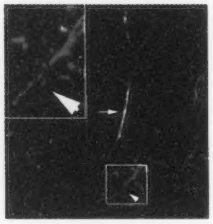

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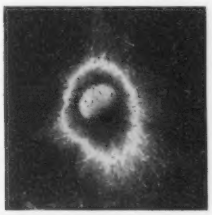

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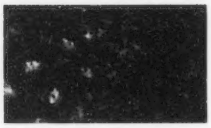

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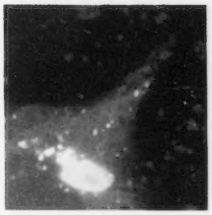
Special Mini-Review series on
Microbial Pathogenesis



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Lysosomes (red) are occupied by a recent infection of *Trypanosoma cruzi* in these CHO cells (green). See the Mini-Review on page 389, and other Mini-Reviews on bacterial and viral pathogenesis in this issue.

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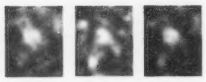

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Special Report

The youth revolution: cell biology in Japan

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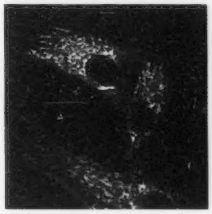

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Mitochondrial (red) and Rab32 (green) signals overlap in a fibroblast also stained for microtubules (blue). Alto et al. implicate Rab32 in the control of mitochondrial fission. See page 659.

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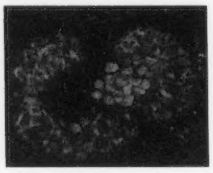

Plakoglobin (red) assembles actin to mediate healing at wound sites and maintains the cortical actin skeleton, the major determinant of cell shape in the frog blastula. See page 695.

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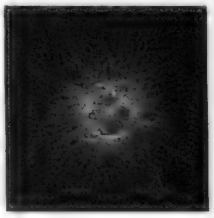

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EB1 (green) is found at the plus ends of microtubules in fly tissue culture cells, and its promotion of microtubule dynamics is required for proper assembly, dynamics, and positioning of the spindle. See page 873.

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Enthoprotin: a novel clathrin-associated protein identified through subcellular proteomics 855

S. Wasiak, V. Legendre-Guillemin, R. Puertollano, F. Blondeau, M. Girard, E. de Heuvel, D. Boismenu, A.W. Bell, J.S. Bonifacino, and P.S. McPherson

Articles

DNA replication is required for the checkpoint response to damaged DNA in *Xenopus* egg extracts 863

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***Drosophila* EB1 is important for proper assembly, dynamics, and positioning of the mitotic spindle** 873

S.L. Rogers, G.C. Rogers, D.J. Sharp, and R.D. Vale

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The *Saccharomyces cerevisiae* Mob2p–Cbk1p kinase complex promotes polarized growth and acts with the mitotic exit network to facilitate daughter cell–specific localization of Ace2p transcription factor 885

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The CeCDC-14 phosphatase is required for cytokinesis in the *Caenorhabditis elegans* embryo 901

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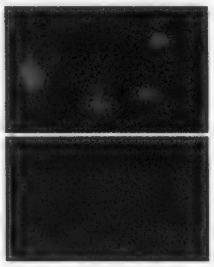
Proteomic analysis of the mammalian nuclear pore complex 915

J.M. Cronshaw, A.N. Krutchinsky, W. Zhang, B.T. Chait, and M.J. Matunis

Regulation of membrane fusion by the membrane-proximal coil of the t-SNARE during zippering of SNAREpins 929

T.J. Melia, T. Weber, J.A. McNew, L.E. Fisher, R.J. Johnston, F. Parlati, L.K. Mahal, T.H. Söllner, and J.E. Rothman



DNA replication in frog egg extracts (top) can be inhibited in trans by the addition of nuclei with damaged DNA (bottom). See page 863.

During myogenesis, N-cadherin both activates Rho (green), which is required for β-catenin (red) recruitment to adhesion sites, and represses Rac. See page 953.

Crumbs interacts with moesin and β_{Heavy}-spectrin in the apical membrane skeleton of *Drosophila* 941

E. Médina, J. Williams, E. Klipfell, D. Zarnescu, G. Thomas, and A. Le Bivic

N-cadherin–dependent cell–cell contact regulates Rho GTPases and β-catenin localization in mouse C2C12 myoblasts 953

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Protein phosphatase 2A associates with and regulates atypical PKC and the epithelial tight junction complex 967

V. Nunbhakdi-Craig, T. Machleidt, E. Ogris, D. Bellotto, C.L. White III, and E. Sontag

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– News –

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- Microtubules get swept up in the excitement of mitosis 990
- COPs are held up by Sec16p
- Pinosomes help a virus escape
- DEDD spells death to caspase substrates
- Gnawing at the bone

N. LeBrasseur

Research Roundup

- RNAi takes on DNA 992
- Comm with me
- A titinic extension
- Channeling hedgehogs

W.A. Wells

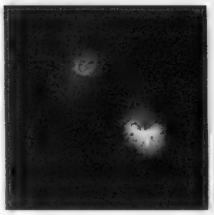
Meeting Report

Send Me a Message: The FASEB Conference on Signal Transduction Salt Lake City, UT June 29–July 3, 2002 994

W.A. Wells

Videos and more videos

An annotated video collection is now available at http://www.jcb.org/misc/annotatedvideo.shtml. Brief descriptions of papers, organized by topic, are combined with links to the best videos published in the *JCB* over the past 3 years.



On the Cover

Interphase microtubule arrays (top) are pulled in by dynein (bottom) in preparation for mitosis. See page 1051.

– Research Articles –

Reports

Reorganization of the microtubule array in prophase/prometaphase requires cytoplasmic dynein-dependent microtubule transport 997

N.M. Rusan, U.S. Tulu, C. Fagerstrom, and P. Wadsworth

Articles

Computer simulations reveal motor properties generating stable antiparallel microtubule interactions 1005

F. Nédélec

The role of the Tim8p–Tim13p complex in a conserved import pathway for mitochondrial polytopic inner membrane proteins 1017

S.P. Curran, D. Leuenberger, E. Schmidt, and C.M. Koehler

Sec16p potentiates the action of COPII proteins to bud transport vesicles 1029

F. Supek, D.T. Madden, S. Hamamoto, L. Orci, and R. Schekman

Sphingosine-1-phosphate phosphohydrolase in regulation of sphingolipid metabolism and apoptosis 1039

H. Le Stunff, I. Galve-Roperh, C. Peterson, S. Milstien, and S. Spiegel

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Articles (cont.)

DEDD regulates degradation of intermediate filaments during apoptosis 1051

J.C. Lee, O. Schickling, A.H. Stegh, R.G. Oshima, D. Dinsdale, G.M. Cohen, and M.E. Peter

A yeast model system for functional analysis of β-catenin signaling 1067

M.S. Lee, K.A. D'Amour, and J. Papkoff

β-Catenin–induced melanoma growth requires the downstream target *Microphthalmia*-associated transcription factor 1079

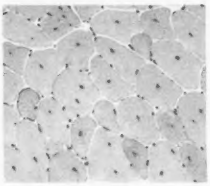
H.R. Widlund, M.A. Horstmann, E.R. Price, J. Cui, S.L. Lessnick, M. Wu, X. He, and D.E. Fisher

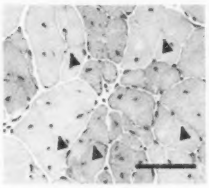
Involvement of TRPC in the abnormal calcium influx observed in dystrophic (*mdx*) mouse skeletal muscle fibers 1089

C. Vandebrouck, D. Martin, M. Colson-Van Schoor, H. Debaix, and P. Gailly

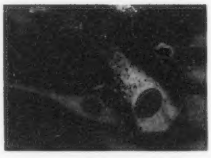
α1-Syntrophin–deficient skeletal muscle exhibits hypertrophy and aberrant formation of neuromuscular junctions during regeneration 1097

Y. Hosaka, T. Yokota, Y. Miyagoe-Suzuki, K. Yuasa, M. Imamura, R. Matsuda, T. Ikemoto, S. Kameya, and S. Takeda





Mice lacking α1-syntrophin have impaired muscle regeneration, including abnormal muscle fibers (bottom) and neuromuscular junctions, leading to reduced force generation. See page 1097.



S1P phosphatase (red) is found in the ER (green), where it processes S1P to apoptotic-promoting ceramide. See page 1039.

Agrin plays an organizing role in the formation of sympathetic synapses 1109

J. Gingras, S. Rassadi, E. Cooper, and M. Ferns

Adenovirus triggers macropinocytosis and endosomal leakage together with its clathrin-mediated uptake 1119

O. Meier, K. Boucke, S.V. Hammer, S. Keller, R.P. Stidwill, S. Hemmi, and U.F. Greber

Hyaluronan–CD44 interaction hampers migration of osteoclast-like cells by down-regulating MMP-9 1133

P. Spessotto, F.M. Rossi, M. Degan, R. Di Francia, R. Perris, A. Colombatti, and V. Gattei

The Journal of Cell Biology

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– News –

Editorial

Figure manipulation: assessing what is acceptable 1151
M. Rossner

In This Issue

- Birth control for centrioles 1152
- Signaling clusters caught in the act
- Herpes spoils excitement
- Finding a heat-shock absorber
- An endosomal switchboard

A.W. Dove

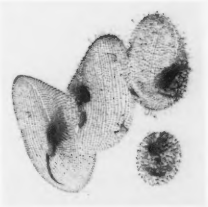
Research Roundup

- Hiding telomerase from chromatin 1154
- Semaphorins—not just for axons
- Promiscuous Ras turns on the wrong partner
- SynCAM and sidekick synchronize synapse synthesis
- Stand up and take hold

N. LeBrasseur

Features

Does size matter? 1156
W.A. Wells



On the Cover

Depletion of ε-tubulin leads to a progressive failure in basal body assembly in the ciliate *Paramecium*. See page 1183.

– Research Articles –

Articles

Phosphorylation and an ATP-dependent process increase the dynamic exchange of H1 in chromatin 1161
Y. Dou, J. Bowen, Y. Liu, and M.A. Gorovsky

De novo formation of centrosomes in vertebrate cells arrested during S phase 1171
A. Khodjakov, C.L. Rieder, G. Sluder, G. Cassels, O. Sibon, and C.-L. Wang

Functional role of ε-tubulin in the assembly of the centriolar microtubule scaffold 1183
P. Dupuis-Williams, A. Fleury-Aubusson, N. Garreau de Loubresse, H. Geoffroy, L. Vayssié, A. Galvani, A. Espigat, and J. Rossier

***Tetrahymena thermophila* contains a conventional γ-tubulin that is differentially required for the maintenance of different microtubule-organizing centers** 1195
Y. Shang, B. Li, and M.A. Gorovsky

Myosin 1c and myosin IIB serve opposing roles in lamellipodial dynamics of the neuronal growth cone 1207
T.J. Diefenbach, V.M. Latham, D. Yimlamai, C.A. Liu, I.M. Herman, and D.G. Jay

Actin turnover is required to prevent axon retraction driven by endogenous actomyosin contractility 1219
G. Gallo, H.F. Yee, Jr., and P.C. Letourneau

Articles with related stories in the *In This Issue* section have page numbers in red.

Articles (cont.)

A combination of three distinct trafficking signals mediates axonal targeting and presynaptic clustering of GAD65 1229

J. Kanaani, A.E. El-Husseini, A. Aguilera-Moreno, J.M. Diacovo, D.S. Bredt, and S. Baekkeskov

TGFβ receptor internalization into EEA1-enriched early endosomes: role in signaling to Smad2 1239

S. Hayes, A. Chawla, and S. Corvera

Selective internalization of sodium channels in rat dorsal root ganglion neurons infected with herpes simplex virus-1 1251

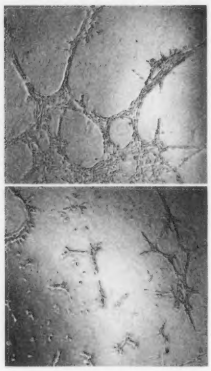
N. Storey, D. Latchman, and S. Bevan

T cell receptor ligation induces the formation of dynamically regulated signaling assemblies 1263

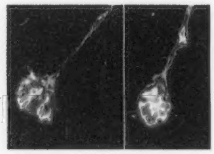
S.C. Bunnell, D.I. Hong, J.R. Kardon, T. Yamazaki, C.J. McGlade, V.A. Barr, and L.E. Samelson

CD40, an extracellular receptor for binding and uptake of Hsp70–peptide complexes 1277

T. Becker, F.U. Hartl, and F. Wieland



Disrupting the interaction of CD151 with α3 and α6 integrins (bottom) inhibits the ability of cells to form a network of cellular cables. See page 1299.



Guidance cues that cause axon retraction (right) inhibit F-actin turnover. See page 1219.

p21-activated kinase 4 interacts with integrin αvβ5 and regulates αvβ5-mediated cell migration 1287

H. Zhang, Z. Li, E.-K. Viklund, and S. Strömblad

An extracellular site on tetraspanin CD151 determines α3 and α6 integrin–dependent cellular morphology 1299

A.R. Kazarov, X. Yang, C.S. Stipp, B. Sehgal, and M.E. Hemler